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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/741,332	12/21/2000	Kinya Kato	35.C14996	6155

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EXAMINER	
WONG, EDNA	

ART UNIT	PAPER NUMBER
1741	11

DATE MAILED: 12/31/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/741,332	Applicant(s) KATO ET AL.	
	Examiner Edna Wong	Art Unit 1741	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 November 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39,56-60 and 63-66* is/are pending in the application.

4a) Of the above claim(s) *1 and 27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *2-26,28-39,56-60 and 63-65* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *2-26,28-39,56-60 and 63-66* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *10* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

This is in response to the Amendment dated November 20, 2002. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Arguments

Election/Restrictions

Applicant's election without traverse of Group II, claims **2-26, 28-39, 56-60 and 63-64** in Paper No. 8 is acknowledged.

Claim **1** will not be rejoined because claim 1 is directed to a method were an emitted pollutant in contact with functional water containing chlorine (gas+ liquid) is irradiated with light. This is distinct from claim **2** because that method comprises irradiating a pollutant-containing gas and the chlorine-containing gas (gas +gas) with light.

Claim **27** will not be rejoined because claim 27 is directed to an apparatus comprising a means for bringing an emitted pollutant into contact with functional water (gas + liquid) including a chlorine-containing gas generating means and a means for irradiating the functional water with light. This is distinct from claim **28** because the apparatus comprises a mixing means for mixing a pollutant-containing gas and a chlorine-containing gas (gas + gas) as to form a gaseous mixture and a light irradiation means for irradiating the gaseous mixture with light.

Specification

The disclosure has been objected to because of minor informalities.

The objection to the disclosure has been withdrawn in view of Applicants' amendment.

Claim Objections

Claim **2** has been objected to because of minor informalities.

The objection of claim 2 has been withdrawn in view of Applicants' amendment.

Claim Rejections - 35 USC § 112

Claims **17, 33, 34 and 35** have been rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The rejection of claim 17, 33, 34 and 35 has been withdrawn in view of Applicants' amendment.

Allowable Subject Matter

The indicated allowability of claims 2-26, 28-39, 56-59, 60 and 53-64 is withdrawn in view of newly discovered reference(s). Rejections based on the newly cited reference(s) follow.

Response to Amendment

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

I. Claims **2-26, 28-39, 56-60, 63-64 and 65** drawn to a method of purifying polluted soil and an apparatus for purifying polluted soil, classified in class 204, subclass 158.2.

II. Claim **66**, drawn to an apparatus for purifying polluted soil, classified in class 422, subclass 186.

The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case the process as claimed can be practiced by another materially different apparatus such as an apparatus with a gas-emitting means for heating, a chlorine-containing gas generating means and/or an electrolysis cell.

Furthermore, the only structural limitations recited in the apparatus of claim 66 is a mixer that mixes and a light irradiator that irradiates. The mixer and light irradiator cannot carry out all of the method steps recited in claim 2 and does not have to carry out the method of claim 65 because apparatus claims cover what the device is, not what a device does.

Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

Because these inventions are distinct for the reasons given above and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper.

Applicant is advised that the reply to this requirement to be complete must include an election of the invention to be examined even though the requirement be traversed (37 CFR 1.143).

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

Claim **18** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18

line 3, "(pH value)" is indefinite. It is unclear if the narrower expression in the parentheses is, in fact, a claim limitation.

lines 4-6, "(working electrode: platinum electrode, reference electrode: silver-silver chloride electrode)" is indefinite. It is unclear if the narrower expression in the parentheses is, in fact, a claim limitation.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

I. Claims **2-26, 28-39, 56-60 and 63-65** are provisionally rejected under the judicially created doctrine of double patenting over claims **46-94** of copending Application No. **09/794,836** (Kato et al.). This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows:

(a) mixing a gas containing a pollutant extracted/emitted from soil and a chlorine-containing gas to form a gaseous mixture;

(b) irradiating the gaseous mixture with light to decompose the pollutant; and

(c) producing functional water by electrolysis.

Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 2-26, 28-39, 56-60, 63-65 of the present invention fail to be patentably distinct from the inventions claimed in claims 49-94 of the copending application because the independent claims of the present invention recites similar limitations, either alone or in combination with their dependent claims, as that of the claims of the copending application wherein the claims of the present invention are encompassed by the claim of the copending application. Therefore, the claims would have been obvious (variant) over each other.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

II. Claims **2-26, 28-39, 56-60 and 63-65** are provisionally rejected under the judicially created doctrine of double patenting over claims **6-12, 14-17, 25-30, 33-35 and 37-38** of copending Application No. **09/335,711** (Kato et al.). This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows:

(a) mixing a gas containing a pollutant extracted/emitted from soil and a chlorine-containing gas to form a gaseous mixture;

(b) irradiating the gaseous mixture with light to decompose the pollutant; and

(c) producing functional water by electrolysis.

Although the conflicting claims are not identical, they are not patentably distinct from each other because claims 2-26, 28-39, 56-60, 63-65 of the present invention fail to be patentably distinct from the inventions claimed in claims 6-12, 14-17, 25-30, 33-35 and 37-38 of the copending application because the independent claims of the present invention recites similar limitations, either alone or in combination with their dependent claims, as that of the claims of the copending application wherein the claims of the present invention are included by the claim of the copending application. Therefore, the claims would have been obvious (variant) over each other.

Furthermore, there is no apparent reason why applicant would be prevented from

presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Method

I. Claim **65** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Calcote et al.** (US Patent No. 5, 813,799) in combination with **Robson** (US Patent No. 5,308,507).

Calcote teaches a method for purifying polluted soil which contains a pollutant, comprising the steps of:

(a) heating **10, 12** polluted soil to emit a gas containing a pollutant **32** (col. 3, lines 20-44; and Fig. 1).

Calcote does not teach mixing the gas containing a pollutant with a chlorine-containing gas to form a gaseous mixture; and irradiating the gaseous mixture with light to decompose the pollutant.

However, Robson teaches a method for purifying polluted soil (col. 4, line 64 to col. 5, line 5) which contains a pollutant, comprising:

(b) mixing **56** a waste stream and a chlorine-containing gas (= chlorine containing oxidants) [col. 3, lines 21-22] to form a gaseous mixture; and

(c) irradiating the gaseous mixture with light to decompose the pollutant (col. 3, lines 19-68; and Fig. 4).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because one skilled in the art would have been motivated to have modified the method of Calcote by mixing the gas containing a pollutant with a chlorine-containing gas to form a gaseous mixture; and irradiating the gaseous mixture with light to decompose the pollutant because Calcote teaches drawing the contaminant vapors **32** released by heating the aquifer and soil rise by a fan or vacuum pump **36** to a vapor condenser or *charcoal filter* **38** (col. 3, lines 40-44; and Fig. 1), or *other above ground treatment* (col. 4, lines 19-24; and abstract). Thus, it would have been well within the skill of the artisan to have substituted the charcoal filter **38** of Calcote with other above ground treatment such as the port **58** of a mixing chamber **56** of Robson because this would have destroyed all of the contaminants rather than concentrate them on the filter. Robson teaches that the regeneration of activated carbon separates the contaminants from the carbon, but does not destroy all of the contaminants (col. 1, lines 36-56). It would have been desirable to

one of ordinary skill in the art to have destroyed all of the contaminants.

Apparatus

II. Claims **28-35 and 37-39** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Calcote et al.** (US Patent No. 5, 813,799) in combination with **Robson** (US Patent No. 5,308,507).

Calcote teaches an apparatus for purifying polluted soil which contains a pollutant, comprising:

(a) a gas-emitting means for heating **10, 12** for heating the polluted soil to make the soil emit a gas containing a pollutant **32** (col. 3, lines 20-44; and Fig. 1).

The heating is conducted using a heater **12** (col. 3, lines 20-44; and Fig. 1).

Calcote does not teach a chlorine-containing gas generating means for generating a gas containing chlorine, a mixing means for mixing the pollutant-containing gas and the chlorine-containing gas so as to form a gaseous mixture and a light irradiation means for irradiating the gaseous mixture with light; and wherein the light irradiated by the light irradiation means comprises a light whose wavelength is in the range of 300 to 500 nm.

However, Robson teaches an apparatus for purifying polluted soil (col. 4, line 64 to col. 5, line 5) which contains a pollutant, comprising:

(b) a chlorine-containing gas generating means **52** for generating a gas containing chlorine (= chlorine containing oxidants) [col. 3, lines 21-22];

(c) a mixing means **56** for mixing a pollutant-containing gas and the chlorine-containing gas so as to form a gaseous mixture; and

(d) a light irradiation means for irradiating the gaseous mixture with light (col. 3, lines 19-68; and Fig. 4).

Thus, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made because one skilled in the art would have been motivated to have modified the apparatus of Calcote with a chlorine-containing gas generating means, a mixing means for mixing and a light irradiation means for irradiating because Calcote teaches drawing the contaminant vapors **32** released by heating the aquifer and soil rise by a fan or vacuum pump **36** to a vapor condenser or *charcoal filter* **38** (col. 3, lines 40-44; and Fig. 1), or *other above ground treatment* (col. 4, lines 19-24; and abstract). Thus, it would have been well within the skill of the artisan to have substituted the charcoal filter **38** of Calcote with other above ground treatment such as the port **58** of a mixing chamber **56** of Robson because this would have destroyed all of the contaminants rather than concentrate them on the filter. Robson teaches that the regeneration of activated carbon separates the contaminants from the carbon, but does not destroy all of the contaminants (col. 1, lines 36-56). It would have been desirable to one of ordinary skill in the art to have destroyed all of the

contaminants.

As to wherein the light irradiated by the light irradiation means comprises a light whose wavelength is in the range of 300 to 500 nm, Robson teaches that the light irradiated by the light irradiation means comprises a light whose wavelength is in the range of 300 to 500 nm (= UV light) [col. 3, lines 62-68].

Claim limitations directed to the polluted soil, pollutant, pollutant-containing gas, gas, functional water and chlorine concentration are not structural to the apparatus, and therefore, fails to distinguish the apparatus from the prior art.

Claim limitations directed to forming a gaseous mixture, passing a gas through functional water, heating is conducted by mixing and producing the functional water by electrolysis are method limitations and are not structural to the apparatus. Therefore, these limitations fail to distinguish the apparatus from the prior art.

Furthermore, as to generating a gas containing chlorine, apparatus claims cover what the device is, not what a device does. An apparatus claim may be obvious even if it operates in the same way as the prior art, as long as there are structural differences. *Hewlett-Packard Co. v. Bausch & Lomb Inc.* 15 USPQ 2d 1525 (Fed. Cir. 1990); *Demco Corp v. F. Von Langsdorf Licensing Ltd.* 7 USPQ 2d 1222, 1224-1225 (Fed. Cir. 1988).

It appears that the electrolysis cell **52** of Robson produces a gas containing

chlorine (= chlorine containing oxidants) [col. 3, lines 21-22] and/or is structurally capable of producing a gas containing chlorine.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Edna Wong whose telephone number is (703) 308-3818. The examiner can normally be reached on Mon-Fri 7:30 am to 5:00 pm, alt. Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (703) 308-3322. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 873-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Edna Wong
Primary Examiner
Art Unit 1741

EW
December 27, 2002